What is claimed is:

1. An intermetallic composition comprising:

a monolithic solid mass including iron, nickel, manganese and aluminum as a spinodal decomposition product formed in at least two distinct structural phases.

2. The intermetallic composition of claim 1, further comprising a coating.

3. The intermetallic composition of claim 2, wherein the coating is selected from the group consisting of polymeric coatings, silicon-based coatings, metal oxide coatings, gold, platinum, silver, carbon-based coatings, adhesives, and combinations thereof.

4. The intermetallic composition of claim 1, wherein the solid possesses magnetic characteristics.

5. An intermetallic composition comprising a mixture having a macroscopic content of 16-70% iron, 19-35% nickel, 18-33% manganese and 18-33% aluminum, wherein the composition is described in terms of atomic percentages.

6. The intermetallic composition of claim 5, wherein the macroscopic content varies with localized nanostructure.

7. The intermetallic composition of claim 5, wherein the composition comprises 30% iron, 20% nickel, 25% manganese and 25% aluminum.

8. The intermetallic composition of claim 1, wherein the average intermetallic content is according to a formula

$$Fe_{2a}Ni_bMn_cAl_dM_e,$$

wherein M is selected from the group consisting of vanadium, chromium, cobalt, molybdenum, ruthenium and combinations thereof,

a ranges from 16 to 70;

b ranges from 19 to 35

c ranges from 18 to 33;

d ranges from 18 to 33, and

e ranges from 0 to 5.

9. The intermetallic composition of claim 8, wherein the intermetallic composition possesses magnetic characteristics.

10. The intermetallic composition of claim 1, wherein the average intermetallic content is according to a formula:

$$Fe_xNi_{50-x}Mn_yAl_{50-y},$$

wherein X ranges from 15 to 30, and

Y ranges from 20 to 30.

11. The intermetallic composition of claim 10, wherein the intermetallic composition possesses magnetic characteristics.

12. A method of producing an intermetallic composition, the method comprising the steps of:

heating a mixture of metals comprising 16-70% iron, 19-35% nickel, 18-33% manganese and 18-33% aluminum to create a homogenous solution;

cooling the homogenous solution to obtain a homogeneous solid;

rapidly quenching the solid to room temperature;

reheating the solid to within a spinodal temperature region; and

holding the spinodal temperature for a period of time.